IN THE CLAIMS:

Please amend the claims in the above-identified patent application as follows wherein deleted material is marked with a ~~strikethrough~~ and new material is underlined to show the changes made:

1. (**Currently amended**) A method of constructing a model for estimating at least one electrical characteristic ~~characteristics~~ for an extraction sub-problem, said method comprising:

identifying a set of physical measurements of integrated circuit components that define said extraction sub-problem;

selecting a set of training cases for said specific extraction sub-problem, each of said training cases including an associated set of said physical measurements;

solving said specific extraction sub-problem for each of said training cases using said associated set of physical measurements as an input to an accurate physics based model to generate an associated output; and

training a machine-learning model with Bayesian inference using said associated set of physical measurements and associated outputs as training data.

2. (**Original**) The method as claimed in claim 1 wherein said electrical characteristic comprises capacitance.

3. (**Original**) The method as claimed in claim 1 wherein said electrical characteristic comprises resistance.

4. (**Currently amended**) The method as claimed in claim 1 wherein said extraction sub-problem comprises a section of interconnect wire and nearby interconnect wiring within a define halo.

5. (**Currently amended**) The method as claimed in claim 1 wherein said extraction sub-problem comprises a section of interconnect wiring.

6. (**Currently amended**) The method as claimed in claim 1 wherein one of said set of physical measurements ~~parameters~~ comprises a spacing between a pair of interconnect lines.

7. (**Currently amended**) The method as claimed in claim 1 wherein one of said set of physical measurements ~~parameters~~ comprises a wire width.

8. (**Currently amended**) The method as claimed in claim 1 wherein one of said set of physical measurements ~~parameters~~ comprises a wire length.

9. **(Currently amended)** The method as claimed in claim 1 wherein selecting a set of training cases comprises randomly generating input measurements ~~parameters~~ with a gamma probability distribution.

10. **(Original)** The method as claimed in claim 1 wherein said electrical characteristic comprises delay.

11. **(Original)** The method as claimed in claim 1 wherein said machine-learning model comprises a neural network.

Please add the following new claims:

12. **(New)** A computer-readable medium, said computer-readable medium comprising a set of instructions for constructing a model for estimating at least one electrical characteristic for an extraction sub-problem by performing the steps of method of:

identifying a set of physical measurements of integrated circuit components that define said extraction sub-problem;

selecting a set of training cases for said specific extraction sub-problem, each of said training cases including an associated set of said physical measurements;

solving said specific extraction sub-problem for each of said training cases using said associated set of physical measurements as an input to an accurate physics based model to generate an associated output; and

training a machine-learning model with Bayesian inference using said associated set of physical measurements and associated outputs as training data.

13. **(New)** The computer-readable medium as claimed in claim 12 wherein said electrical characteristic comprises capacitance.

14. **(New)** The computer-readable medium as claimed in claim 12 wherein said electrical characteristic comprises resistance.

15. **(New)** The computer-readable medium as claimed in claim 12 wherein said extraction sub-problem comprises a section of interconnect wire and nearby interconnect wiring within a define halo.

16. **(New)** The computer-readable medium as claimed in claim 12 wherein said extraction sub-problem comprises a section of interconnect wiring.

17. **(New)** The computer-readable medium as claimed in claim 12 wherein one of said set of physical measurements comprises a spacing between a pair of interconnect lines.

18. **(New)** The computer-readable medium as claimed in claim 12 wherein one of said set of physical measurements comprises a wire width.

19. **(New)** The computer-readable medium as claimed in claim 12 wherein one of said set of physical measurements comprises a wire length.

20. **(New)** The computer-readable medium as claimed in claim 12 wherein selecting a set of training cases comprises randomly generating input parameters with a gamma probability distribution.